

WHAT IS CLAIMED IS:

1. A motion controlled handheld device comprising:
 - a display having a viewable surface and operable to generate a current image;
 - a motion detection module operable to detect motion of the device within three
 - 5 dimensions and to identify components of the motion in relation to the viewable surface;
 - a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising at least four planar gestures each defined by a motion vector generally
 - 10 aligned in parallel with the viewable surface;
 - a gesture mapping database mapping each of the gestures to a corresponding command, the gesture mapping database mapping each of the four planar gestures to a corresponding grid navigation command;
 - a motion response module operable to identify a matching one of the planar
 - 15 gestures based on the motion and to determine the corresponding one of the grid navigation commands based on the identified planar gesture; and
 - a display control module operable to logically parse a viewable image into a plurality of grid sections, to set one of the grid sections as the current image, and to set another one of the grid sections as the current image in response to the determined
 - 20 grid navigation command.
2. The motion controlled handheld device of Claim 1, wherein the four planar gestures comprise a forward gesture, a backward gesture, a left gesture, and a right gesture.

3. The motion controlled handheld device of Claim 1, wherein:

the gesture mapping database further maps a particular one of the gestures to a granularity command;

5 the motion response module is further operable to identify the particular gesture based on the motion and to determine the granularity command in response to identifying the particular gesture; and

the display control module is further operable to logically re-parse the viewable image into a plurality of different grid sections in response to the granularity command, the different grid sections having a different size as compared with the
10 original grid sections.

4. The motion controlled handheld device of Claim 1, wherein:

the gesture mapping database further maps a particular one of the gestures to a highlight command;

15 the motion response module is further operable to identify the particular gesture based on the motion and to determine the highlight command in response to identifying the particular gesture; and

the display control module is further operable to highlight a first displayed object in the current image in response to the highlight command and to switch to
20 highlighting a second displayed object in the current image in response to the grid navigation command.

5. The motion controlled handheld device of Claim 1, wherein:

the gesture database further maintains at least two perpendicular gestures, each defined by a motion vector generally aligned perpendicular with the viewable surface;

the gesture mapping database further maps each of the two perpendicular
5 gestures to a corresponding dimension navigation command;

the motion response module further operable to identify a matching one of the perpendicular gestures based on the motion and to determine the corresponding one of the grid navigation commands based on the identified perpendicular gesture; and

the display module is further operable to organize a plurality of viewable
10 images into a plurality of layers, to switch from a current one of the layers to another one of the layers in response to the determined dimension navigation command, and to display at least a portion of the one of the viewable images from the currently selected one of the layers.

15 6. The motion controlled handheld device of Claim 5, wherein:

the viewable images comprise calendar images; and

the layers comprise year, month, and day.

7. The motion controlled handheld device of Claim 5, wherein the layers
20 comprise a plurality of menus arranged in a hierarchical relation.

8. The motion controlled handheld device of Claim 1, further comprising:
a first accelerometer operable to detect acceleration along a first axis;
a second accelerometer operable to detect acceleration along a second axis, the
second axis perpendicular to the first axis; and

5 a third accelerometer operable to detect acceleration along a third axis, the
third axis perpendicular to the first axis and perpendicular to the second axis; and
wherein:

the gesture database further defines each of the gestures using a sequence of
accelerations;

10 the motion detection module is further operable to detect motion of the device
using accelerations measured by the first accelerometer, the second accelerometer,
and the third accelerometer; and

the motion response module is further operable to match the accelerations
measured by the motion detection module against gesture definitions in the gesture
15 database to identify particular ones of the gestures.

9. A method for controlling a handheld device comprising:

maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising at least four planar gestures each defined by a motion vector
5 generally aligned in parallel with the viewable surface;

maintaining a gesture mapping database mapping each of the gestures to a corresponding command, the gesture mapping database mapping each of the four planar gestures to a corresponding grid navigation command;

generating a current image on a viewable surface of the handheld device;

10 logically parsing a viewable image into a plurality of grid sections;

setting one of the grid sections as the current image

detecting motion of the device within three dimensions;

identifying components of the motion in relation to the viewable surface;

identifying a matching one of the planar gestures based on the motion;

15 determining the corresponding one of the grid navigation commands based on the identified planar gesture; and

setting another one of the grid sections as the current image in response to the determined grid navigation command.

20 10. The method of Claim 9, wherein the gesture mapping database further maps a particular one of the gestures to a granularity command, the method further comprising:

identifying the particular gesture based on the motion;

25 determining the granularity command in response to identifying the particular gesture; and

logically re-parsing the viewable image into a plurality of different grid sections in response to the granularity command, the different grid sections having a different size as compared with the original grid sections.

11. The method of Claim 9, wherein the gesture mapping database further maps a particular one of the gestures to a highlight command, the method further comprising:

- identifying the particular gesture based on the motion;
- 5 determining the highlight command in response to identifying the particular gesture;
- highlighting a first displayed object in the current image in response to the highlight command; and
- switching to highlighting a second displayed object in the current image in
- 10 response to the grid navigation command.

12. The method of Claim 9, wherein:

- the gesture database further maintains at least two perpendicular gestures, each defined by a motion vector generally aligned perpendicular with the viewable surface;
- 15 the gesture mapping database further maps each of the two perpendicular gestures to a corresponding dimension navigation command; the method further comprising:
 - organizing a plurality of viewable images into a plurality of layers;
 - identifying a matching one of the perpendicular gestures based on the motion;
 - 20 determining the corresponding one of the grid navigation commands based on the identified perpendicular gesture;
 - switching from a current one of the layers to another one of the layers in response to the determined dimension navigation command; and
 - displaying at least a portion of the one of the viewable images from the
 - 25 currently selected one of the layers.

13. The method of Claim 12, wherein the layers comprise a plurality of menus arranged in a hierarchical relation.

14. The method of Claim 9, wherein the gesture database further defines each of the gestures using a sequence of accelerations, the method further comprising:
- detecting acceleration along a first axis;
 - detecting acceleration along a second axis, the second axis perpendicular to
 - 5 the first axis; and
 - detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;
 - detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and
 - 10 matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

15. Logic for controlling a handheld device, the logic embodied in a computer readable medium and operable when executed to perform the steps of:

maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the
5 gestures comprising at least four planar gestures each defined by a motion vector generally aligned in parallel with the viewable surface;

maintaining a gesture mapping database mapping each of the gestures to a corresponding command, the gesture mapping database mapping each of the four planar gestures to a corresponding grid navigation command;

10 generating a current image on a viewable surface of the handheld device;
logically parsing a viewable image into a plurality of grid sections;
setting one of the grid sections as the current image
detecting motion of the device within three dimensions;
identifying components of the motion in relation to the viewable surface;
15 identify a matching one of the planar gestures based on the motion;
determining the corresponding one of the grid navigation commands based on the identified planar gesture; and
setting another one of the grid sections as the current image in response to the determined grid navigation command.

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16. The logic of Claim 15, wherein the gesture mapping database further maps a particular one of the gestures to a granularity command, the logic further operable when executed to perform the steps of:

identifying the particular gesture based on the motion;
25 determining the granularity command in response to identifying the particular gesture; and

logically re-parsing the viewable image into a plurality of different grid sections in response to the granularity command, the different grid sections having a different size as compared with the original grid sections.

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17. The logic of Claim 15, wherein the gesture mapping database further maps a particular one of the gestures to a highlight command, the logic further operable when executed to perform the steps of:

identifying the particular gesture based on the motion;

5 determining the highlight command in response to identifying the particular gesture;

highlighting a first displayed object in the current image in response to the highlight command; and

10 switching to highlighting a second displayed object in the current image in response to the grid navigation command.

18. The logic of Claim 15, wherein:

the gesture database further maintains at least two perpendicular gestures, each defined by a motion vector generally aligned perpendicular with the viewable surface;

15 the gesture mapping database further maps each of the two perpendicular gestures to a corresponding dimension navigation command; the logic further operable when executed to perform the steps of:

organizing a plurality of viewable images into a plurality of layers;

identifying a matching one of the perpendicular gestures based on the motion;

20 determining the corresponding one of the grid navigation commands based on the identified perpendicular gesture;

switching from a current one of the layers to another one of the layers in response to the determined dimension navigation command; and

25 displaying at least a portion of the one of the viewable images from the currently selected one of the layers.

19. The logic of Claim 18, wherein the layers comprise a plurality of menus arranged in a hierarchical relation.

20. The logic of Claim 15, wherein the gesture database further defines each of the gestures using a sequence of accelerations, the logic further operable when executed to perform the steps of:

detecting acceleration along a first axis;

5 detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

10 detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

21. A motion controlled handheld device comprising:

means for maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gestures comprising at least four planar gestures each defined by a motion
5 vector generally aligned in parallel with the viewable surface;

means for maintaining a gesture mapping database mapping each of the gestures to a corresponding command, the gesture mapping database mapping each of the four planar gestures to a corresponding grid navigation command;

10 means for generating a current image on a viewable surface of the handheld device;

means for logically parsing a viewable image into a plurality of grid sections;

means for setting one of the grid sections as the current image

means for detecting motion of the device within three dimensions;

15 means for identifying components of the motion in relation to the viewable surface;

means for identify a matching one of the planar gestures based on the motion;

means for determining the corresponding one of the grid navigation commands based on the identified planar gesture; and

20 means for setting another one of the grid sections as the current image in response to the determined grid navigation command.